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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,288	11/17/2003	Gareth G. Hougham	YOR920030496US1	7006

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EXAMINER

TSUKERMAN, LARISA Z

ART UNIT PAPER NUMBER

2833

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,288

Applicant(s)

HOUGHAM ET AL.

Examiner

Larisa Z. Tsukerman

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment dated 02/03/2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-40 is/are pending in the application.
- 4a) Of the above claim(s) 11-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

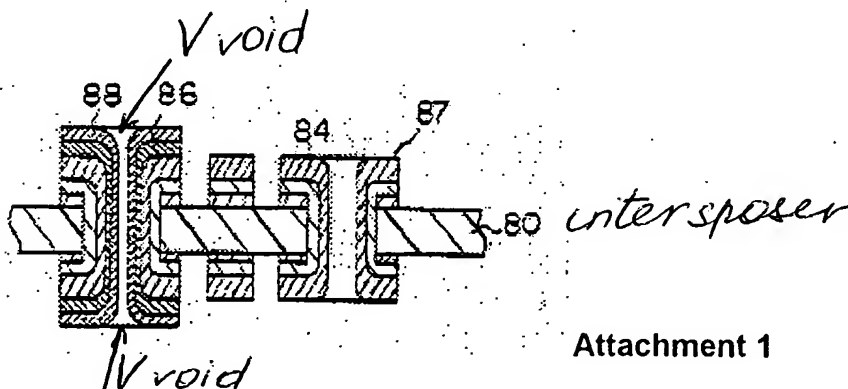
A person shall be entitled to a patent unless –

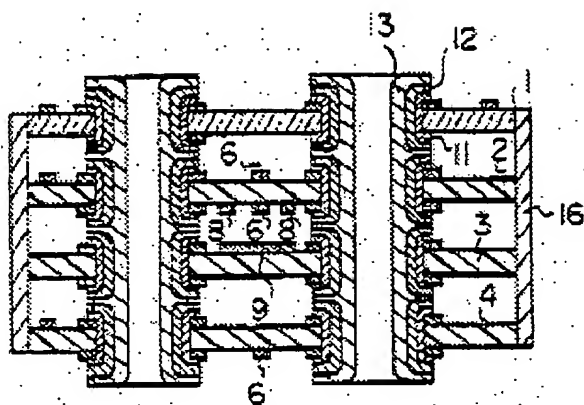
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 – 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurosawa et al. (4528072).

In regard to claim 1, Kurosawa et al. disclose an interposer (not marked, see Attachment 1) comprising an electrically insulating carrier 80, an electrically conductive via 87 disposed in the carrier 80 and a hollow body 86, 88 of electrically conductive material that is disposed in electrical contact with the via 87 on opposite sides of the carrier (see Fig. 9D) and that has at least **one surface void V** (see Attachment 1).

In regard to claim 3, Kurosawa et al. disclose the hollow body 86/88 comprises a plurality of voids V (openings at the top and at the bottom, see Attachment 1).



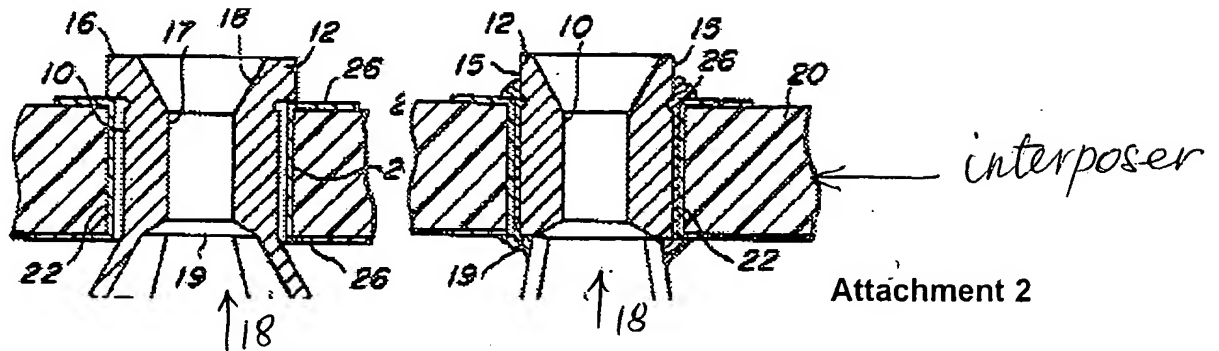


In regard to claim 4, Kurosawa et al. disclose the hollow body 86, 88 comprises at least two voids V (see Attachment 1) in registration with one another and disposed on opposite sides of the carrier 80.

In regard to claim 5, Kurosawa et al. disclose the carrier 80 comprises a plurality of the electrically conductive vias V (see Attachment 1) each disposed in electrical contact with a different one of a plurality of the hollow bodies 86/88.

Claims 1, are rejected under 35 U.S.C. 102(b) as being anticipated by DeSantis et al. (4181385).

In regard to claim 1, DeSantis et al. disclose an interposer (not marked, see Attachment 2) comprising an electrically insulating carrier 20, an electrically conductive via 22 disposed in the carrier 20 and a hollow body 10 of electrically conductive material that is disposed in electrical contact with the via 22 on opposite sides of the carrier 20 (see Figs. 3 - 4) and that has at least **one surface void 18**.



In regard to claim 3, DeSantis et al. disclose the hollow body 10 comprises a plurality of voids 18.

In regard to claim 4, DeSantis et al. disclose the hollow body 10 comprises at least two voids 18 in registration with one another and disposed on opposite sides of the carrier 20.

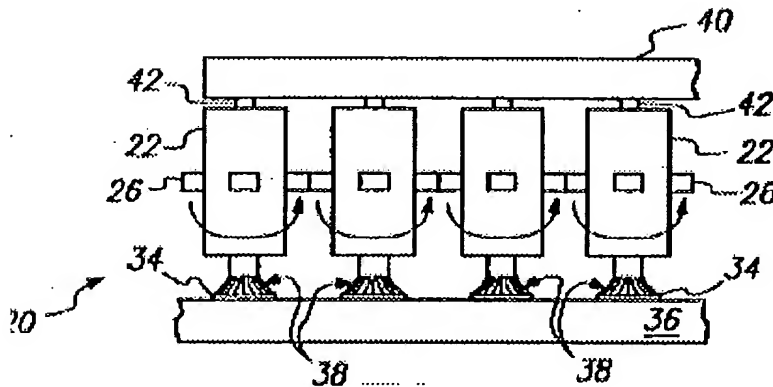
In regard to claim 5, DeSantis et al. disclose the carrier 20 comprises a plurality of the electrically conductive vias 22 each disposed in electrical contact with a different one of a plurality of the hollow bodies 10.

Claims 6 – 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuba et al. (5562462).

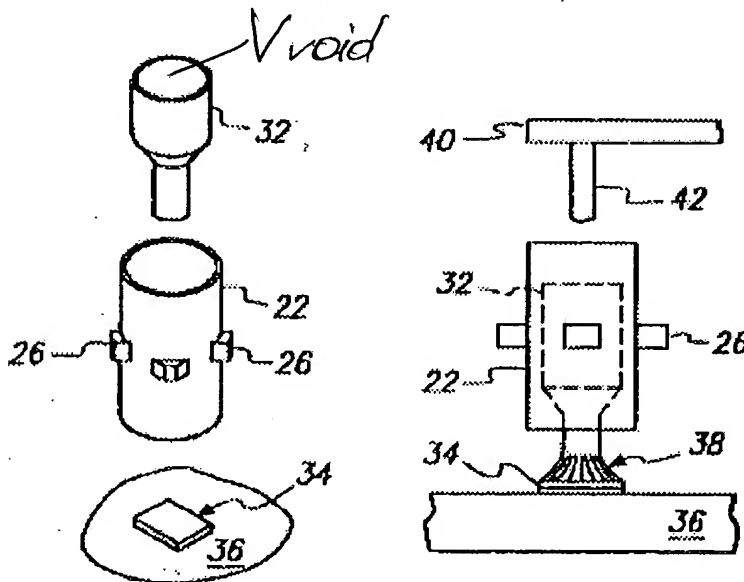
In regard to claim 6, Matsuba et al. disclose an interposer (not marked, see Attachment 4) for connecting a module 40 to a printing wiring board 36, comprising:

a carrier 20 that has at least one electrically conductive via (not marked, see Col.6, line 67 and Col.7, lines 1-3) and that is disposed so that the via is in registration with a connector 42 of the module 40 and a connector 34 of the printed wiring board 36, and at least one electrical contact button 32 that is hollow (see Fig. 4), that is disposed

in the via (see Col.6, line 67 and Col.7, lines 1-3) for electrical contact with the connector 42 of the module 40 and the connector 38 of the printed wiring board 36 and that has at least one surface void V (not marked, see Attachment 4).



Attachment 4



In regard to claim 10, Matsuba et al. disclose the carrier 20 comprises a plurality of the vias (not marked, see Col.6, line 67 and Col.7, lines 1-3) in which a plurality of the electrical contact buttons 32 is disposed (see Fig.7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anselmo et al. (4381134) in view of Matsuba et al. (5562462).

In regard to claim 6, Anselmo et al. disclose an interposer (not marked, see Attachment 5) (*for connecting a module 40 to a printing wiring board 36*), comprising: a carrier 11 that has at least one electrically conductive via 13 and that is disposed so that the via 13 is in registration (*with a connector of the module and a connector of the printed wiring board*), and at least one electrical contact button 20 that is hollow (see Fig. 2), that is disposed in the via 13 (*for electrical contact with the connector of the module and the connector of the printed wiring board*) and that has at least one surface void V (not marked, see Attachment 5). However, Anselmo et al. is silent about what kind of conductive elements connector 20 connects. Matsuba et al. (5562462) teach an interposer 20,22 that interconnects a module 40 with PCB 36. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the connector 20 for connection between the module 40 and the PCB 36 as taught by Matsuba et al. in structure of Anselmo et al. **based on intended use reason.**

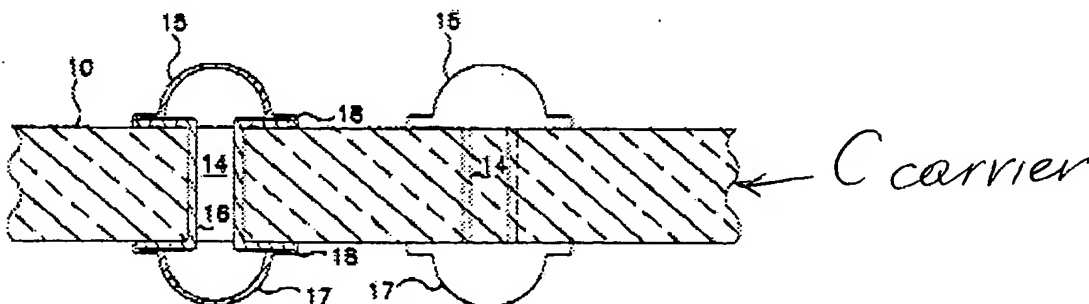
Claims 1, 3 – 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tighe et al. (5924875).

In regard to claim 1, Tighe et al. disclose an interposer 9 comprising an electrically insulating carrier C (not marked, see Attachment 3), an electrically conductive via 16/14 disposed in the carrier C and a hollow body 15/17 of electrically conductive material that is disposed in electrical contact with the via 16/14 on opposite sides of the carrier C (see Fig.8) and that has at least **one surface void V** (see Attachment 3).

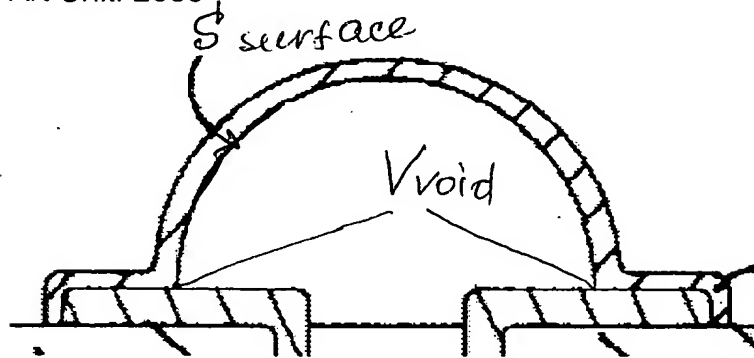
In regard to claim 3, Tighe et al. disclose the hollow body 15/17 comprises a plurality of voids V (openings at the top and at the bottom, see Attachment 3).

In regard to claim 4, Tighe et al. disclose the hollow body 15/17 comprises at least two voids V (see Attachment 3) in registration with one another and disposed on opposite sides of the carrier C.

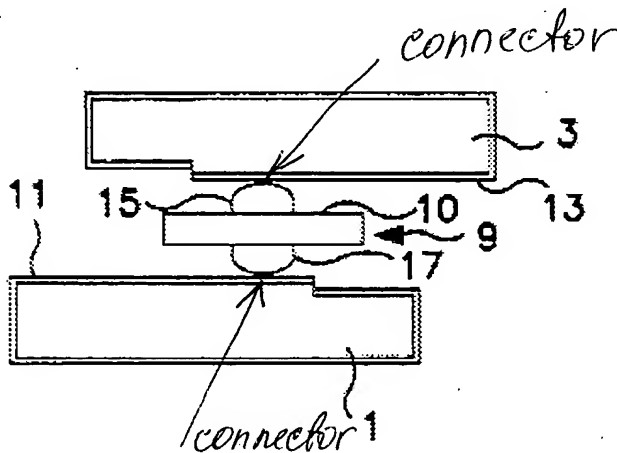
In regard to claim 5, Tighe et al. disclose the carrier C comprises a plurality of the electrically conductive vias 16/14 each disposed in electrical contact with a different one of a plurality of the hollow bodies 15/17.



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Attachment 3



In regard to claim 6, Tighe et al. disclose an interposer 9 for connecting a module 3 to a printing wiring board 1, comprising (see Figs. 1 and 3):

a carrier C (not marked, see Attachment 3) that has at least one electrically conductive via 16/14 and that is disposed so that the via 16,14 is in registration with a connector of the module 3 and a connector of the printed wiring board 1, and at least one electrical contact button 15,17 that is hollow, that is disposed in the via 16,14 for electrical contact with the connector (not marked, see Attachment 3) of the module 3 and the connector (not marked, see Attachment 3) of the printed wiring board 1 and that has at least one surface void V (not marked, see Attachment 3).

In regard to claim 8, Tighe et al. disclose electrical contact button 15,17 comprises a plurality of surface voids V (see Attachment 3).

In regard to claim 9, Tighe et al. disclose the electrical contact button 15,17 comprises at least two surface voids V (see Attachment 3) in registration with one another and disposed on opposite sides of the carrier C.

In regard to claim 10, Tighe et al. disclose the carrier C comprises a plurality of the vias 16,14 in which a plurality of the electrical contact buttons 15, 17 is disposed (see Fig.7).

Response to Arguments

Applicant's arguments, filed on 02/03/2005, with respect to claims 1 - 5 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to the rejection of claims 6 have been fully considered but they are not persuasive •

In response to Applicant's Arguments regarding claim 6, Tighe's reference, that there is no surface void, Examiner disagrees and considers openings O as voids V on surface S (see Attachment 3)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Larisa Z Tsukerman whose telephone number is (571)-272-2015. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A Bradley can be reached on (571)-272-2800 ex. 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT,05/23/ 2005


THO D.TA
PRIMARY EXAMINER